**Design and Technology at Mount Primary**

**Long Term Plan**

**Key Concepts**

**Master Practical Skills**

Involves developing the skills needed to make high quality products

**Design, make, evaluate and improve**

Involves developing the process of design thinking and seeing design as a process.

**Take inspiration from design throughout history**

Involves appreciating the design process that has influenced the products we use in everyday life.

**Topics**

| **Year** | **Topic** | **Overview** | **Rationale** |
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| **Year 1** | Mechanisms/tools- sliders and leavers | Understand why we use tools and suggest which tool is best for the job  Understand how sliders and levers work  Know the different mechanisms produce different type of movement | Links with history toys topic  Build on EYFS curriculum |
|  | Freestanding structure | Know that materials have different properties and they can be used to make other things  Know that some joining techniques are more appropriate that others depending on structure  Understand that tools can be used and to use them safely  . | Links with Science- materials  STEM links |
|  | Food | Be able to name some foods  Know some of the different food groups  Understand and talk about a healthy meal | Links to Science and PSHE  Community links- local shops |
| **Year 2** | Mechanisms/tools- wheels and axels | Understand what a wheel is and how it can be used  Understand what an axel is and how it can be used | Build on Y1 skills  Link with KS1 history- transport topic |
|  | Food | Understand different tastes- e.g. sweet, sour  Begin to name food groups  know how to grate, peel and cut food for simple dishes safely | Links to Science and PSHE  Build on Y1 topic  Build on Y1 Science- senses topic |
|  | Textiles | Know materials have different textures and understand tools can be used to cut these  Understand the suitability of different materials  Join materials including sewing | Links to Science- Materials – Y1 and Y2  Build of EYFS topics  PSHE- Keeping safe |
| **Year 3/ 4 Cycle A** | Levers and linkages | Understand the purpose of a lever  Know that mechanical systems must be assembled using many components  Know that marking out after measuring helps to create accurate components for mechanical systems | Build on mechanisms and tools- KS1 topics  Link to Science- forces  STEM links  Look at how levers and linkages are used in the local area |
|  | Food | Know the different food types and what they do  Understand an ideal healthy diet  Have an awareness of home-grown and imported food  Understand processed and unprocessed food | Build on KS1 topics  Links with Science, PE and PSHE  Geography- countries food is imported from |
|  | Textiles | Know that a materials have both functional and aesthetic qualities  Understand that materials can be combined and mixed to create more useful characteristics.  Know that there are different styles of stitching to join materials and the names for these | Build on Year 2 topic  Build on KS1 Science- materials topic |
| **Year 3/ 4**  **Cycle B** | Food- cooking savoury food | Know the names of at least two methods of cooking such as boiling, frying, baking or roasting.  Understand that food can be peeled, sliced, chopped | Build on KS1 topics  Links with Science, PE and PSHE  Geography- countries food is imported from |
|  | Electrical systems- simple circuits and switches | Know and name the components for an electrical system  Know that in a series circuit, all components are connected end-to-end, forming a single path for current flow. | Links to Science topics  Link to PSHE- Staying Safe |
|  | Structures Shell structures | Know that a shell structure is a structure which is made with a 3D shaped shell and name real life examples e.g. tin can, milk carton etc.  Understand that CAD can assist in the design process of a product with a shell structure by using computer programs to design/draw nets which can then be printed and built into 3D shell structures | Links with Maths- Shape  Link with Computing  Real life examples |
| **Year 5/ 6 Cycle A** | Frame structures | Know that a frame structure is a structure which is made up of a series of thin bars, which create a framework  Understand that frame structures are used in everyday life  Know that some materials are more/less effective when designing/making frame structures. | Real life examples  Build on KS1 Science- materials and their properties |
|  | Food- celebrating culture and seasonality | Know that seasonality affects the production of food as some foods are only produced due to qualities  Understand that food can be processed in factories  Know that countries, counties and cities have specific regional and national dishes | Build on KS1 and Y3/4 topics  Year 1- seasonal changes  Links with Science, PE and PSHE  Geography- countries food is imported from and regional dishes |
|  | Electrical systems- more complex switches and circuits | Know that simple electrical circuits and components can be used to create functional moving products  Understand that in a series circuit, all components are connected end-to-end, forming a single path for current flow.  Be aware of the differences between input and output devices | Links to Science topics  Link to PSHE- Staying Safe  Build on Y3/4 electrical systems topic |
| **Year 5/ 6 Cycle B** | Textiles- including computer aided design | Understand that CAD can assist in the textiles design process through specific computer programs  Know that designs often have limitations e.g. time, materials, budget which can affect design choices and criteria  Know that in exploded diagrams the representation of the finished product looks as though it has exploded outwards and individual elements of the product can be seen more clearly | Build on Year 2 topic  Build on KS1 Science- materials topic  Link with computing |
|  | Mechanical systems- pulleys, gears or cams | Know that cams are rotating or sliding pieces in a mechanical linkage used for transferring rotary motion into linear motion  Understand cams, cogs and pulleys | Build on mechanisms and tools- KS1 and Y3/4 topics  Link to Science- forces  STEM links  Look at how they are used in the local area |
|  | Food- celebrating culture and seasonality | Know the nutritional components of a given meal (with drink) including food groups (Fat, Sugar, Protein, Carbohydrate, Vitamins and Minerals)  Know that recipe can be followed to create a meal which can be adapted and each step has a skill  Be aware that intolerances and allergies are not the same thing | Build on KS1 and Y3/4 topics  Links with Science, PE and PSHE  Geography- countries food is imported from and regional dishes  Links to RE- cultural and religious meals/dishes/celebrations |